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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/620,267

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Wei-Ge Chen

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EXAMINER

LERNER, MARTIN

ART UNIT

PAPER NUMBER

2626

MAIL DATE

DELIVERY MODE

12/04/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/620,267

Applicant(s)

CHEN ET AL.

Examiner

Martin Lerner

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 to 50 is/are pending in the application.
- 4a) Of the above claim(s) 30 and 31 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 to 23 and 32 to 45 is/are allowed.
- 6) ☒ Claim(s) 1, 6, 24 to 29, and 46 to 50 is/are rejected.
- 7) ☒ Claim(s) 2 to 5 and 7 to 10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to because "Get Next PCM Frame 402" should be "Get Next PCM Frame 401". See Specification, Page 16, Lines 1 to 2.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office Action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, Applicants will be notified and informed of any required corrective action in the next Office Action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

On page 4, line 14, there should be a period at the end of the sentence.

On page 4, line 19, "references" should be "reference".

On page 9, line 20, "use" should be "uses".

On page 10, line 11, "entropy encoder (160)" should be "entropy encoder (170)".

On page 12, lines 30 to 31, "inverse quantizer/weighter (240)" should be "inverse quantizer/weighter (250)".

On page 13, line 17, "inverse frequency transformer (270)" should be "inverse frequency transformer (260)".

On page 13, line 21, "overlapper/adder (270)" should be "overlapper/adder (270)".

On page 23, line 1, "Figure 12" should be "Figure 11".

On page 25, line 24, "that that" should be "that".

Appropriate correction is required.

Claim Objections

3. Claims 30 and 31 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, claims 30 and 31 have not been further treated on the merits.

Claim 30 depends upon both claims 24 and 25, but not in the alternative. Claim 31 depends upon claims 24, 25, and 30, but not in the alternative. Applicants may amend claims 30 and 31 to eliminate the dependency on multiple claims.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 26 to 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 26 to 29 depend upon independent claim 15, but should depend upon independent claim 24. Independent claim 15 is directed to a computer-readable program carrying medium, but claims 16 to 29 are directed to a method. Moreover, there is a lack of antecedent basis for "the time domain based codec", "the non-lapped-transform based codec", and "the transition windowing function" from independent claim 15, but these limitations are found within independent claim 24. Accordingly, claims 26 to 29 are treated for purposes of examination as if they depend upon independent claim 24.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 24 to 29 and 46 to 50 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Independent claims 24 and 46 are non-statutory because they recite only an abstract mathematical algorithm acting upon a signal, but the signal is not limited to a real physical quantity of an audio signal. Lossless and lossy compression of an abstract signal represent an improper mathematical algorithm because it is not directed to a practical application. Independent claims 24 and 46 should be amended to provide non-preambular limitation of the signal to an audio signal. See MPEP §2106 to §2106.02.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 6, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hardwick* in view of *Hans et al.* ("*Lossless Compression of Digital Audio*").

Concerning independent claims 1, 6 and 46, *Hardwick* discloses a method, computer program, and digital signal processor for audio encoding, where both lossy and lossless compression of an audio signal are provided. *Hardwick* states that the MPEG-1 standard may be used for lossy compression of an audio signal to reduce the bit rate. However, it is suggested that lossy compression may be less desirable for some applications requiring very high audio quality. ¶[0004] - ¶[0005] Lossless compression of audio may be employed to reduce the average number of bits required to represent all of the data values by exploiting certain redundancies in the audio signal. ¶[0009] - ¶[0010] Thus, *Hardwick* suggests "encoding a portion of the input audio signal . . . using lossy coding" and "encoding . . . using lossless coding". The only element not expressly disclosed by *Hardwick* is "receiving information input by a user of the audio encoder designating one or more portions of the input audio signal for lossless compression" so that the designated portion is encoded with lossless coding and the portion other than the designated portion is encoded with lossy coding. Still, *Hardwick* notes that lossy compression may be less desirable to some applications requiring very high audio quality, but lossy encoding may introduce artifacts that may be annoying to some listeners. ¶[0005]

Concerning independent claims 1, 6, and 46, *Hans et al.* teaches that although much work has been done in the area of lossy compression of audio signals, lossless audio compression may become a useful complement to lossy compression algorithms in some applications. *Hans et al.* states that lossless coding of stereo CD quality digital audio signals could become an essential technology for digital music distribution over

the Internet because some consumers will want to acquire the best possible quality of an audio recording for their high-fidelity stereo system, and lossy audio compression technologies such as MPEG and MP3 may not be acceptable for this application. Specifically, although compression will continue to be important for Internet transmission of audio signals, music distribution applications will offer highly compressed audio clips to the consumer for browsing and selection, but after selection, the consumer accustomed to audio CD quality may require access to a losslessly compressed copy of the original. (See Pages 21 and 22) Thus, *Hans et al.* suggests that portions of an audio clip may be designated for lossy compression, and portions of an audio signal may be designated for lossless compression. It would have been obvious to one having ordinary skill in the art to input information from a user designating portions of an audio signal for lossless compression and portions of an audio signal for lossy compression as taught by *Hans et al.* in an audio coder for coding by both lossless and lossy compression of *Hardwick* for a purpose of providing useful complementary audio compression for consumers who will want to acquire the best possible quality of an audio recording for their high-fidelity stereo system.

Allowable Subject Matter

10. Claims 11 to 23 and 32 to 45 are allowed.
11. Claims 2 to 5 and 7 to 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

Regarding independent claims 11, 15, 19, 32, 36, and 41, the prior art of record does not disclose or reasonably suggest a combination of a user designation of whether a frame is to be encoded in a lossy compression mode or a lossless compression mode, encoding a frame with non-rectangular windowing for a lossy compression mode and encoding a frame with a rectangular windowing for a lossless compression mode, and encoding frames with transition windowing for frames between frames coded with lossy coding and frames coded with lossless coding.

Dependent claims 2 to 4 and 7 to 9 would be allowable if incorporated into independent claims 1 and 6 because the prior art of record does not disclose or reasonably suggest encoding a transition portion with part rectangular and part non-rectangular windowing.

Dependent claims 5 and 10 would be allowable if incorporated into independent claims 1 and 6 because the prior art of record does not disclose or reasonably suggest lossy coding based on a lapped transform with non-rectangular windowing and lossless coding based on linear predictive coding using an adaptive filter with rectangular windowing.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to Applicants' disclosure.

Wegener, Moriya et al. ("A design of lossy and lossless scalable audio coding"), and Moriya et al. ("Sampling rate scalable lossless audio coding") disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (571) 272-7608. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

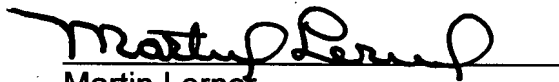
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11/26/07


Martin Lerner
Examiner
Group Art Unit 2626